

WHAT IS CLAIMED IS:

1. An optical disc driving apparatus, comprising:
 - a stepping motor having a plurality of coils;
 - 5 a detecting unit for detecting an exterior vibration while being vibrated in response to said exterior vibration;
 - a driver IC for supplying control currents for controlling said stepping motor to said coils of said stepping motor to have said stepping motor assume two different operation states consisting of a first operation state to drive said stepping motor to ensure that said rotation shaft of stepping motor is rotatably moved around its rotation axis, and a second operation state to drive said stepping motor to ensure that said rotation shaft of stepping motor fails to be rotatably moved around its rotation axis; and
 - a control signal producing unit for producing a control signal to have said driver IC supply control currents in association with said exterior vibration detected by said detecting unit to said coils of said stepping motor to have said stepping motor assume said second operation state after judging whether or not said exterior vibration detected by said detecting unit is larger in amplitude than a predetermined threshold level.
- 20 2. An optical disc driving apparatus for driving an optical disc having a central axis, comprising:
 - a turntable having a central axis, said turntable being adapted to retain an optical disc under the condition that said central axis of said turntable is axially aligned with said central axis of said optical disc;
 - 25 an optical pickup unit movable toward and away from said central axis of said turntable, said optical pickup unit being adapted to write or retrieve information from said optical disc retained by said turntable;
 - a stepping motor having a plurality of coils;
 - 30 a detecting unit for detecting an exterior vibration while being vibrated in response to said exterior vibration;
 - a driver IC for supplying control currents for controlling said stepping motor to said coils of said stepping motor to have said stepping motor assume two different operation states consisting of a first operation state to drive said stepping motor to ensure that said optical pickup unit is moved toward and away from said central axis of said turntable, and a second operation state to drive said stepping motor to ensure
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that said optical pickup unit fails to be moved toward and away from said central axis of said turntable; and

a control signal producing unit for producing a control signal to have said driver IC supply control currents in association with said exterior vibration detected by said detecting unit to said coils of said stepping motor to have said stepping motor assume said second operation state after judging whether or not said exterior vibration detected by said detecting unit is larger in amplitude than a predetermined threshold level.

3. An optical disc driving apparatus as set forth in claim 2, in which said detecting unit is adapted to detect said exterior vibration while being vibrated in the direction toward said central axis of said turntable from said optical pickup unit and vice versa.

4. An optical disc driving apparatus as set forth in claim 2, in which said control signal producing unit is adapted to produce a control signal to have said stepping motor assume said second operation state after deciding whether or not to supply said control currents to said coils of said stepping motor on the basis of results detected by said detecting unit.

5. An optical disc driving apparatus as set forth in claim 2, in which said control signal producing unit is adapted to produce a control signal to have said stepping motor assume said second operation state after deciding whether or not to supply said control currents to said coils of said stepping motor by judging whether or not said exterior vibration detected by said detecting unit is larger in amplitude than said predetermined threshold level in a predetermined period of time.

6. An optical disc driving apparatus as set forth in claim 2, in which said control signal producing unit is adapted to produce a control signal to have said stepping motor assume said second operation state by calculating products of predetermined coefficient values and said last control currents to be respectively supplied to said coils of said stepping motor just before having said stepping motor assume said second operation state, said predetermined coefficient values being equal to one another, and before having said driver IC supply said control currents respectively equal to said products of said predetermined coefficient values and said control currents memorized therein.

7. An optical disc driving apparatus as set forth in claim 2, in which said control signal producing unit is adapted to produce a control signal to have said stepping motor assume said second operation state after producing coefficient values
5 in response to results detected by said detecting unit, calculating products of said coefficient values and said last control currents to be respectively supplied to said coils of said stepping motor just before having said stepping motor assume said second operation state, said predetermined coefficient values being equal to one another, and having said driver IC supply said control currents respectively equal to
10 said products of said predetermined coefficient values and said control currents memorized therein.

8. An optical disc driving apparatus as set forth in claim 2, in which said control signal producing unit is adapted to produce a control signal to have said
15 stepping motor assume said second operation state when any one of said control currents to be respectively supplied by said driver IC to said coils of said stepping motor is equal in amplitude to an extreme value.

9. An electronic apparatus to be installed into an automotive vehicle, said
20 electronic apparatus comprising an optical disc driving apparatus for driving an optical disc having a central axis, comprising:

a turntable having a central axis, said turntable being adapted to retain an optical disc under the condition that said central axis of said turntable is axially aligned with said central axis of said optical disc;

25 an optical pickup unit movable toward and away from said central axis of said turntable, said optical pickup unit being adapted to write and retrieve information from said optical disc retained by said turntable;

a stepping motor having a plurality of coils;

30 a detecting unit for detecting an exterior vibration while being vibrated in response to said exterior vibration;

a driver IC for supplying control currents for controlling said stepping motor to said coils of said stepping motor to have said stepping motor assume two different operation states consisting of a first operation state to drive said stepping motor to ensure that said optical pickup unit is moved toward and away from said central axis
35 of said turntable, and a second operation state to drive said stepping motor to ensure that said optical pickup unit fails to be moved toward and away from said central axis

of said turntable; and

a control signal producing unit for producing a control signal to have said driver IC supply control currents in association with results detected by said detecting unit to said coils of said stepping motor to have said stepping motor assume said
5 second operation state after judging whether or not said exterior vibration detected by said detecting unit is larger in amplitude than a predetermined threshold level.